RIVERS AND FLOODS

By MONTROSE W. HAYES

[In charge River and Flood Division]

During April 1933 there were minor floods in the rivers of Michigan, and in some of the rivers draining into the Atlantic Ocean and the Gulf of Mexico. In addition, there were important floods in rivers in Iowa, in the Illinois, Wabash and Ohio Rivers, and in the rivers in the lower Mississippi Basin. Some of the floods were continuations of the overflows of March, and others had not begun to recede at the end of April. Therefore, a discussion of the floods of both March and April will appear in a later issue of the REVIEW.

THE WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDonald in charge]

NORTH ATLANTIC OCEAN

By W. F. McDONALD

Atmospheric pressure.—Average pressure during April 1933 was, for the third month in succession, below normal over mid-latitude portions of the Atlantic. The deficiency in April was not large, exceeding a tenth of an inch only at Horta, but pressures were below normal from the Azores far southwestward over the Caribbean Sea and Gulf of Mexico.

In higher latitudes, the barometer averaged higher than normal. The excess at Belle Isle approached a quarter of an inch, and was above a tenth of an inch eastward to the British Isles and thence south to Gibraltar.

The extreme range of pressure shown at land stations (see table 1) was from 29.06 to 30.54 inches; both of these extremes were reported from the same station, Halifax. Pressure readings reported from ships on the North Atlantic revealed almost identical range, from the highest reading, 30.53, reported by the American S.S. *American Merchant*, at 42°30′ N., 60°10′ W., on the 15th, to lowest, 29.06, reported by the American S.S. *City of Baltimore*, at 44°50′ N., 32°30′ W., on the 20th.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, April 1933*

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	In.	*In.*	*In.*		*In.*	
Julianehaab, Greenland	30.06	------	30.52	14	29.60	19
Reykjavik, Iceland	29.96	+0.16	30.50	19	29.15	2
Lerwick, Shetland Islands	29.94	+.14	30.47	14	29.46	3
Valencia, Ireland	30.05	+.16	30.45	14	29.47	25
Lisbon, Portugal	30.11	+.12	30.34	26	29.79	30
Madeira	30.09	+.08	30.52	1	29.79	29
Horta, Azores	30.01	−.14	30.33	1	29.63	23
Belle Isle, Newfoundland	30.06	+.23	30.42	12	29.42	24
Halifax, Nova Scotia	30.02	+.09	30.54	13	29.06	5
Nantucket	29.98	+.01	30.43	20	29.27	4
Hatteras	29.96	−.05	30.29	13	29.52	25
Bermuda	29.99	−.10	30.32	1	29.46	26
Turks Island	29.98	−.04	30.10	1	29.92	11, 21, 22, 29
Key West	29.95	−.07	30.12	1	29.78	25
New Orleans	29.91	−.09	30.23	12	29.63	5
Cape Gracias, Nicaragua	29.89	−.08	29.94	1, 2, 12	29.82	23

NOTE.—All data based on a.m. observations only, with departures compiled from best available normals related to time of observations, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

Cyclones and gales.—April opened with a well-developed cyclonic area central not far east of Cape Race. With this center of low pressure there merged during the next 10 days, a succession of cyclonic waves that passed into the Atlantic off the North American Continent. In the meantime, the original disturbance moved slowly northeastward toward Iceland.

These disturbances were not generally severe over a wide area, but were marked, especially during the first few days of the month, by squalls and thunderstorms of violent local character. Several vessels in the vicinity of Cape Hatteras on the 4th encountered and reported unusual line squalls, evidently connected with the frontal disturbance which destroyed the U.S. Navy dirigible *Akron* just off the coast of New Jersey, shortly after midnight of April 3–4.

Destruction of the *Akron* with 73 lives, was the only storm loss of serious proportions on the Atlantic during the month. The weather attending this disaster is of such great interest that charts VIII and IX, for April 3 and 4, 1933, are used to record the conditions on the morning preceding and following that event.

The low-pressure area shown on the New England coast in chart IX developed greater intensity as it moved on northeastward and caused fairly wide-spread gales on the 6th and 7th over the Atlantic west of the 35th meridian and southward in mid-ocean to the 35th parallel.

On the 14th a cyclonic development extending from the Azores to southern Greenland caused gales over the middle part of the main northern steamer routes. The period from the 7th to the 22d was otherwise relatively free from strong winds, although low pressure persisted steadily over the mid-Atlantic near the Azores.

The stormiest period of the month was the 3 days from the 23d to the 25th, when extensive cyclonic developments dominated the western and northern portions of the Atlantic. The highest wind recorded during the month was force 11, encountered by the American S.S. *American Farmer* near latitude 41° N., longitude 19° W., on the 24th.

High pressure conditions overspread the Atlantic after the 26th, and the last 4 days were practically free from winds of gale force.

Fog.—Fogginess increased greatly on the American coast from Cape Hatteras to the Grand Banks, where this condition was reported on 7 to 13 days. The highest frequency was between Cape Cod and Cape Hatteras. There were a few days with fog over mid-ocean, and a maximum of 5 days on the approaches to the English Channel.